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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,635	02/20/2004	Mitsuyuki Taniguchi	1785.1005	4147
21171	7590	11/22/2006	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			AURORA, REENA	
			ART UNIT	PAPER NUMBER
			2862	

DATE MAILED: 11/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/781,635

Applicant(s)

TANIGUCHI ET AL.

Examiner

Reena Aurora

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

This communication is in response to amendment received on 09/15/06.

Claims 1 – 19 are presented for examination.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 –19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffen et al. (5,900,727) in view of Abe (JP 04015517).

As to claim 1, Griffen et al. (hereinafter Griffen) discloses a kit for a rotary encoder including a plurality of signal generating members (24, 24', 24'', fig. 1) for generating mutually different pulses, any selected one of the signal generating members (24, 24', 24'', fig. 1) being able to be attached in an exchangeable manner to a rotary body (20, col. 8, lines 27 - 32); and a signal sensing unit (30, fig. 1) arranged in close proximity to one selected signal generating member (24) attached to the rotary body (20), for sensing a signal generated due to a rotation of the signal generating member (24); wherein the plurality of pulse generating members are respectively formed in such a manner that numbers of cycles and -intervals in pulses generated during a unit rotation of respective pulse (signal) generating members are different from

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each other (col. 11, lines 15 – 29 and col. 12, lines 4 - 20). Griffen fails to disclose that the products of the numbers of pulse (signal)-cycles multiplied by the pulse (signal)-intervals in the pulses (signals) are generally identical to each other. Abe discloses a magnetic encoder wherein two magnetic drums (fig. 2) having same outer diameter with different number of magnetic poles and therefore the products of the numbers of pulse (signal)-cycles multiplied by the pulse (signal)-intervals in the pulses (signals) would be generally identical to each other. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Griffen in view of the teachings of Abe such that the products of the numbers of pulse (signal)-cycles multiplied by the pulse (signal)-intervals in the pulses (signals) are generally identical to each other would provide a waveform of uniform magnitude.

As to claim 2, Griffen discloses that the plurality of signal generating members (24, 24', 24'', fig. 1) is a circular plate member having an outer circumferential surface, and wherein a signal generating element for generating said signal is provided on said outer circumferential surface of each signal generating member.

As to claims 3, 5 and 17, Griffen fails to disclose that the plurality of signal generating members have outer diameters (or inner diameters as in claim 5) generally identical to each other. Abe discloses a magnetic encoder wherein two magnetic drums (fig. 2) having same outer diameter (inner diameter) with different number of magnetic poles. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Griffen in view of the teachings of Abe such that providing the plurality of signal generating members have outer diameters

and inner diameters generally identical to each other would result in a waveform of uniform magnitude.

As to claim 4, Griffen discloses that the plurality of signal generating members (24, 24', 24'', fig. 1) is an annular member having an inner circumferential surface, and wherein an attachment portion for detachably attaching each signal generating member to the rotary body (20) is provided in said inner circumferential surface.

As to claim 6, Griffen discloses that the plurality of signal generating members includes a signal generating element comprising at least one tooth (col. 1, lines 30 - 37).

As to claim 7, Griffen discloses that each of said plurality of signal generating members (24, 24', 24'', fig. 1) includes a signal generating element comprising at least one magnetized pattern.

As to claim 8, Griffen discloses a rotary encoder including a first pulse (signal) generating member (24, fig. 1) for generating a first pulse (signal) generating member (24) being able to be attached to a rotary body (20), in a manner as to be exchangeable with a second pulse (signal) generating member (24') for generating a second pulse (signal) different from the first pulse (signal); and a pulse (signal) sensing unit (30) arranged in close proximity to the first pulse (signal) generating member (24) attached to the rotary body (20), for sensing the first pulse (signal) generated due to a rotation of the first pulse (signal) generating member (24); wherein the first pulse (signal) generating member (24) is formed in such a manner that a number of pulse (signal)-cycles and a signal interval in the first pulse (signal)

generated during a unit rotation of the first pulse (signal) generating member is different from a number of pulse (signal) -cycles and a pulse (signal) -interval in the second pulse (signal) generated during a unit rotation of the second pulse (signal) generating member (col. 11, lines 15 – 29 and col. 12, lines 4 - 20). Griffen fails to disclose that the product of the number of signal-cycles multiplied by the signal-interval in the first signal is generally identical to a product of the number of signal-cycles multiplied by the signal-interval in the second signal. Abe discloses a magnetic encoder wherein two magnetic drums (fig. 2) having same outer diameter with different number of magnetic poles and therefore the products of the numbers of pulse (signal)-cycles multiplied by the pulse (signal)-intervals in the pulses (signals) would be generally identical to each other. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Griffen in view of the teachings of Abe such that the products of the numbers of pulse (signal)-cycles multiplied by the pulse (signal)-intervals in the pulses (signals) are generally identical to each other would provide a waveform of uniform magnitude.

As to claim 9, Griffen discloses a rotary encoder comprising a rotary body (20); and at least two pulse (signal) generating members (24, 24'), each pulse (signal) generating member exchangeably attachable to the rotary body (20), each pulse (signal) generating member having approximately the same outer diameter as the other pulse (signal) generating members (col. 11, lines 15 – 29 and col. 12, lines 4 - 20). Griffen fails to disclose and each including a pulse (signal) generating element (fig. 2) having a pulse (signal) -generation pitch different from the other pulse (signal) generating

members. Abe discloses a magnetic encoder wherein two magnetic drums having same outer diameter with different number of magnetic poles and therefore the products of the numbers of pulse (signal)-cycles multiplied by the pulse (signal)-intervals in the pulses (signals) would be generally identical to each other and therefore having a pulse (signal) -generation pitch different from the other pulse (signal) generating members. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Griffen in view of the teachings of Abe such that including a pulse (signal) generating element having a pulse (signal) -generation pitch different from the other pulse (signal) generating members would provide a waveform of uniform magnitude.

As to claim 10, Griffen discloses that the a signal sensing unit (200) arranged in close proximity to the rotary body (20) having one of the signal generating members (96) attached, the signal sensing unit (200) capable of sensing a signal generated by the signal generating member (96) during a unit rotation of the signal generating member.

As to claims 11 - 13, Griffen discloses that the signal generating members (94, 96) have an outer circumferential surface, each of the signal generating elements being provided on the outer circumferential surface of each signal generating member.

As to claims 14 and 15, Griffen discloses that the signal generating element (24, 24', 24'', fig. 1) comprises at least one magnetized pattern, and wherein the products of the number of teeth in each signal generating member multiplied by the pitches

between the adjacent magnetized patterns of each signal generating member are generally identical to each other.

As to claim 16, Griffen discloses that the signal sensing unit (200) includes a magnetic sensing element (94, 96) and a bias magnet (not shown).

As to claim 18, Griffen discloses that the signal generating members (24, 24', 24'', fig. 1) each have a through hole defined therein into which the rotary body (20) is inserted.

As to claim 19, Griffen discloses that the signal generating members (24, 24', 24'', fig. 1) each have a bottomed hole defined therein for partially receiving the distal end of the rotary body (20).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1 - 19 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Reena Aurora whose telephone number is 571-272-2263. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, E. Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Reena Aurora

  
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